

NOTHRUS ANAUNIENSIS Canestrini & Fanzago.

There has always been some uncertainty with regard to this species, which very closely resembles *N. sylvestris*. On looking over our British specimens of supposed *sylvestris*, however, we find some which agree precisely with the description of *anauniensis*, being tridactyle and having the abdomen rounded posteriorly, with short spatulate hairs of about equal length.

This species is therefore for the first time recorded here as British. The diagnosis is complicated by the fact that we find some specimens of undoubted *sylvestris* which are didactyle, but in no case have we come across a tridactyle specimen of the form characterised by the more truncated abdomen and filiform hairs of unequal length. The two species are, no doubt, closely allied, but there appear to us good grounds for regarding them as distinct.

EXPLANATION OF THE PLATES.

PLATE XIX.

- Fig. 1. *Oribata furcata*, p. 565. 1 *a*, pseudostigmatic organ; 1 *b*, lamella.
 2. *Oribata omisa*, p. 565. 2 *a*, pseudostigmatic organ; 2 *b*, lamella;
 2 *c*, tectipedium; 2 *d*, femur of 1st leg.
 3. *Serrarius microcephalus*, nymph, p. 566. 3 *a*, markings on notogaster more highly magnified.
 4. *Liacarus bicornis*, p. 566.

PLATE XX.

- Fig. 1. *Notaspis maculosa*, p. 567.
 2. *Notaspis sculptilis*, p. 567.
 3. *Nothrus crinitus*, p. 567.
 4. *Nothrus tectorum*, p. 568.
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11. On some South Australian Spiders of the Family
Lycosidae. By H. R. HOGG, M.A., F.Z.S.

[Received October 17, 1905.]

(Text-figures 80-89.)

The Spiders described in the present paper are from the Collection of the S. Australian Museum, Adelaide. I am indebted for the loan of them to the kindness of its Director, Prof. E. C. Stirling, F.R.S. They were collected, however, chiefly from the north side of the River Murray in New South Wales.

This important group of roving Spiders ranges in great numbers over every part of the known world, and the main features of the type species, *L. tarentula* Rossi of the type genus *Lycosa* Latreille, are so closely reproduced, even to the pattern on the back of the abdomen, in the most widely separated countries (in Australia with *L. obscura*, *L. godeffroyi* L. Koch, *L. hasseltii* L. Koch, etc.), that all attempts to divide them into subsidiary genera, until we reach a few less numerous and quite outlying forms, have proved unsatisfactory. Consequently many earlier genera,

such as *Pirata* Sund., *Trochosa* C. Koch, *Arctosa* C. Koch, *Tarentula* C. Koch, *Potamia* C. Koch, &c., have been abandoned by later writers.

M. Simon (Hist. Nat. des Araign. vol. ii. pp. 317 *et seqq.*, 1898) separates the main group into those species following *Lycosa* Latreille, but further divides it into a number of sub-types and those following *Pardosa* C. Koch. The former comprises species which have the front aspect of the cephalothorax moderately sloping at the sides and a lip longer than broad; the latter those with the front aspect squarer with more perpendicular sides, the lip broader than, or at least as broad as, long, and having as a subsidiary character the tarsal joint of the fourth pair of legs longer than the patella *cum* tibia of the same.

Some years ago, following these lines, I constituted a new genus, which I called *Venator* (Proc. Royal Soc. Victoria, vol. xiii. pt. 1, 1900), for some species with a more extremely widened type of frontal aspect, but with the lip clearly broader than long and the tarsal joint of iv. not so long as tibia *cum* patella iv.

However, the more specimens I examine the more the only tangible characteristics show themselves to be interchanged, and I look on these two genera as no more distinctly definable than M. Simon's above mentioned other varieties of *Lycosa* (*loc. cit.* pp. 346-349).

M. Simon further makes a division between those species with two teeth on the inner margin of the falx-sheath and those with three.

The bulk of the Australian species have three, but (in Horn Exped. part ii. p. 349, 1896) I described *L. coulei* which had five large equal-sized teeth on same, and no other specially marked characteristic distinguishing it from the rest of the genus.

Out of about 60 specimens in the present collection there are 12 species of *Lycosa*, of which no fewer than 9 are new, and one new *Dolomedes*. These I have described below.

Synopsis of Species.

In all. Three large equal sized-teeth on inner margin of falx-sheath. Front row of eyes shorter than middle row.

- a. Eyes of front row of equal width.
 - Under side of abdomen wholly black. Clypeus wider than the diameter of eyes of front row *L. tasmanica*, sp. nov.
- b. Diameter of median eyes of front row larger than laterals.
 - a¹. Clypeus wider than the diameter of the front median eyes.
 - a². No distinguishable pattern on under side of abdomen. Abdomen underneath pale yellow-brown. Tibial joint of palp longer than patellar. Cephalothorax equal in length to patella *cum* tibia iv. *L. arenaris*, sp. nov.
 - b². A shield-shaped or triangular field on under side of abdomen.
 - a³. A fawn-coloured shield on a dark brown ground. Cephalothorax shorter than patella *cum* tibia iv. *L. molyneuxi*, sp. nov.
 - b³. A black shield on yellow-brown ground. Median eyes of front row barely their diameter from eyes of second row *L. stirlingæ*, sp. nov.

- b*¹. Clypeus not wider than the diameter of the front median eyes.
- a*⁴. Abdomen underneath wholly brown or black.
- a*⁵. Black underneath; a dark pattern on buff ground on upper side. Median and marginal stripes on cephalothorax *L. obscura* L. Koch.
- b*⁵. Brown underneath.
- a*⁶. Dull dingy brown underneath, yellow-brown above; pale median and marginal stripes on cephalothorax..... *L. gilberta*, sp. nov.
- b*⁶. Bright chocolate-brown underneath, with large buff spot on upper side at base. Legs brown from base to middle of patella, remainder buff *L. bicolor*, sp. nov.
- b*⁴. A triangular shield pattern underneath abdomen on creamy-yellow ground.
- a*⁷. No pale median or marginal stripes on cephalothorax.
- a*⁸. Shield brown.
- a*⁹. Shield long and narrow, pale chestnut. Clypeus as broad as front median eyes *L. castanea*, sp. nov.
- b*⁹. Shield broad oval, dark brown edged with yellow stripes. Clypeus three-fourths the diameter of front median eyes..... *L. errans*, sp. nov.
- b*⁸. Shield black.
- a*¹⁰. Shield reaching only about halfway to spinnerets. Eyes of second row less than half their diameter apart *L. lata* ? L. K.
- b*¹⁰. Shield reaching nearly to spinnerets. Eyes of second row four-fifths of their diameter apart *L. phyllis*, sp. nov.
- b*⁷. Pale median and marginal stripes on cephalothorax.
- A dark brown nearly black shield halfway to spinnerets. Clypeus only slightly narrower than front median eyes..... *L. clara* ? L. K.

LYCOSA TASMANICA, sp. nov. (Text-fig. 80, p. 572.)

Cephalothorax dark brown, with narrow paler marginal and side stripes and only faint median stripe. The mandibles are black-brown, with yellow-brown hair on upper and outer portions. Lip, maxillæ, sternum, and coxæ black-brown, with dark brown hair. The upper side of the abdomen has a dark brown bell-shaped pattern at the base marked out with yellow-brown streaks on chocolate-brown ground. The posterior half is dark brown, with faint traces of paler transverse stripes. There is a rather pale stripe down each side separating the back colour from the wholly black-brown field on the under side. The legs and palpi are chocolate-brown all over, except the under side of the femora which are paler yellowish grey.

The *cephalothorax* is of the broad frontal type, being three-fifths of its greatest breadth at the base of the mandibles, and one-fourth of the same only in height from the mandibles to the level of the rear row of eyes.

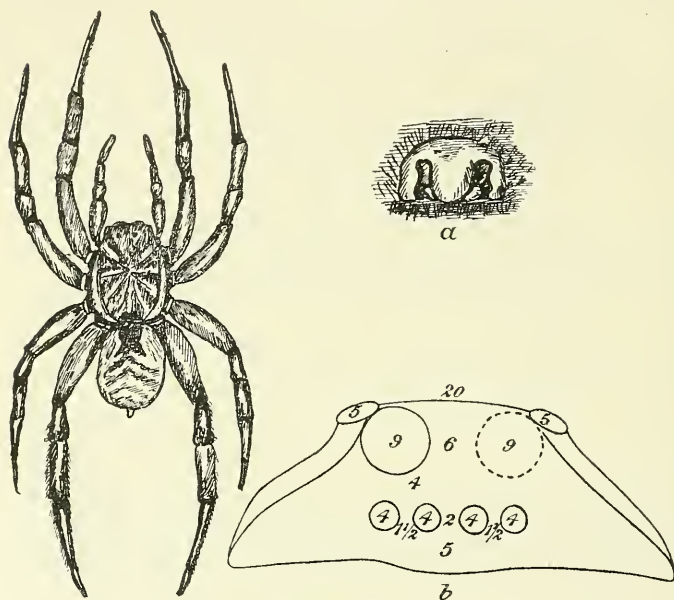
The front row of *eyes* appears slightly procurved, the side eyes being as broad as the median eyes, but oval. The latter are half their diameters apart and rather less from the side eyes. The clypeus is wider than the median eyes. The latter are their

diameter from those of the second row, one of which, in this specimen, is abnormally small. They are yellow on wide black rings, and apparently two-thirds of their normal diameter apart, and one-eighth of their length wider than the front row.

The *mandibles* are as long as the front of the cephalothorax, and half their length in breadth.

There are three large teeth on the inner margin of the falx-sheath and one large tooth between two smaller at irregular intervals on the outer.

Text-fig. 80.



Lycosa tasmanica.

a, epigyne; *b*, eyes from front *.

The *lip* and *maxillæ* are covered with rough upstanding bristly hair. The former is broader than long, slightly incurved in front and less than one-half the length of the *maxillæ*. The *sternum* is a broad oval; the hair on this and the *coxae* thick, but shorter and less erect.

The *palpi* are longer than the cephalothorax, and the *legs* have two spines above on *tibiæ* iii. and iv., none on *tibiæ* i. and ii.

The hair on the *abdomen* is coarse and thickly laid. The epigyne is arched but broader than long, the median ridge being a broad flat plate falling from above.

* The measurements given for the eyes are, in all cases, in tenths of a millimetre.

Measurements in millimetres.

		Long.	Broad.				
Cephalothorax ...		13	$\left\{ \begin{array}{l} 6 \text{ in front.} \\ 10 \\ 9 \end{array} \right.$				
Abdomen		$11\frac{1}{2}$					
Mandibles		6					
		Coxa.	Trochanter & femur.	Patella & tibia.	Metatarsus & tarsus.		
Legs	1.	5	11	$11\frac{1}{2}$	11	=	$38\frac{1}{2}$
	2.	$4\frac{1}{2}$	$10\frac{1}{2}$	11	$10\frac{1}{2}$	=	$36\frac{1}{2}$
	3.	$4\frac{1}{2}$	10	9	10	=	$33\frac{1}{2}$
	4.	5	12	$12\frac{1}{2}$	14	=	$43\frac{1}{2}$
Palpi.....		$2\frac{1}{2}$	6	5	4	=	$17\frac{1}{2}$

One female sent by Mr. Dove from Table Cape, Tasmania.

It may be worth noting that this Tasmanian species conforms to the type of three species of my *Venator* class from Macedon, 40 miles north of Port Phillip Bay, Victoria. It was at Macedon that I discovered a species of *Peripatus* new to Victoria, which subsequently turned out to be the normal Tasmanian species.

LYCOSA PHYLIS, sp. n. (Text-fig. 81, p. 574.)

Cephalothorax dark brown, with chestnut-brown downlying hair. No distinctly marked median or marginal stripes, but the hair is rather thicker there. The side streaks nearly bare, showing the under surface.

Mandibles black-brown, covered all over with thick matted buff-coloured hair.

Lip, maxillæ, sternum, and coxæ dark reddish-brown with brown hairs, the sternum thickly matted.

The abdomen on the upper side has a dark brown hair-pattern of usual type on paler ground. Angular transverse stripes, six or seven in number, with pale spots at each end. The sides pale yellow-brown; on the under side a broad shield-shape black-brown field extends from the genital fovea nearly to the spinnerets, where the buff ground of the sides comes across. Anteriorly of the genital fovea clearly paler than the field, but still dark brown. Spinnerets dark brown.

The legs and palpi are of a medium yellow-brown; the under side of the femora more red-brown.

The cephalic fovea is short and shallow.

The *eyes* of the front row are one-half the diameter of the median apart, and the same distance from the margin of the clypeus and those of the second row. The laterals are three-fourths the diameter of the median; whole row slightly procurved.

The eyes of the second row are distant from one another four-fifths of their diameter, which is $2\frac{1}{2}$ times that of the front median.

The *mandibles* are longer than the front patella. There are

three large teeth on the inner edge of the falx-sheath, and a thick fringe on the outer, which hides the teeth if any.

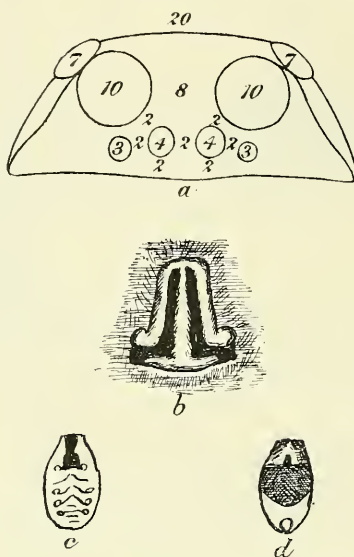
The *lip* is broader than long, slightly hollowed and bevelled in front, constricted at base, and reaches to less than half the height of the maxillæ through beginning below them.

The epigyne is longer than broad and narrowest anteriorly.

There are two spines above on tibiæ iii. and iv., none on tibiæ i. and ii.

The metatarsus of the fourth pair of legs is shorter than the patella *cum* tibia of same.

Text-fig. 81.



Lycosa phyllis.

a, eyes from front; *b*, epigyne; *c*, upper, and *d*, lower sides of abdomen.

Measurements in millimetres.

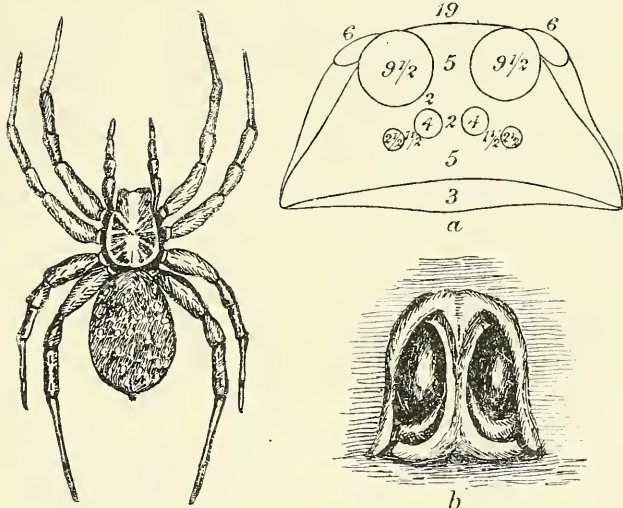
		Long.	Broad.			
Cephalothorax ...		11	{ 5 in front. 7			
Abdomen		12				
Mandibles		4½				
Legs				Pat. & tib.	Metat. & tars.	
	1.	Coxa. 3½	Tr. & fem. 9½	9	8½	= 30½
	2.	3	8½	8½	8½	= 28½
	3.	3	8	8	9	= 28
	4.	3½	10	10	13	= 36½
Palpi.....	2	4½	4	(8½ & 4½)		= 13½

Two females from the Gilbert River, Riverina, sent by Mr. A. Molyneux. One female from Kangaroo Island (A. Zietz), paler and rather smaller.

LYCOSA MOLYNEUXI, sp. nov. (Text-fig. 82.)

The cephalothorax is red-brown, with pale to darker yellow-brown downlying hair intermixed with dark brown upstanding hair; a paler marginal and median stripe with side-streaks the same.

Text-fig. 82.



Lycosa molyneuxi.

a, eyes from front; b, epigyne.

The mandibles are black-brown, with yellow-brown hair except on the lower inner edges of the falx, which are bare. The lip, maxillæ, sternum, and coxæ are reddish-brown with yellow-brown hair. The legs and palpi yellow-brown; the under side of the femoral joints much paler than above.

The abdomen is yellow-brown above, with a small darker patch at the base and two pairs of darker spots near the middle. The sides are pale. The under side of the abdomen is a bright rich brown anteriorly, with two broad stripes of the same curving inwards and joining in front of the spinnerets, which are of the same colour. The space enclosed from the genital fovea to the point of juncture is of a pale buff.

The cephalothorax is rather narrow in front and shorter than patella cum tibia iv.

The *eyes* of the front row are clearly procurved. The side eyes not quite $\frac{2}{3}$ the diameter of the median, having their centres on a level with the lower part of the latter. The median pair are half their diameter apart, the same distance from the eyes of the second row and slightly less from their own laterals. The clypeus is broad, the distance to the root of the mandibles being twice the diameter of the front median, but a transverse edge marking runs across at more than half the distance away from the eyes; the whole distance is of the same colour and covered with hair.

The eyes of the second row are rather more than half their diameter apart, their total width being $1\frac{1}{3}$ of that of the front row. Those of the third row are three times their diameter apart and $\frac{2}{3}$ the diameter of those of the second row.

The *mandibles* are $\frac{1}{3}$ longer than the front patellæ, are thickly covered with downlying matted hair, interspersed with upstanding bristles; on the inner edge of the falx-sheath are three equally large teeth, and on the outer edge one similar sized large tooth between two smaller ones.

The *lip* is straight across the front, but the edge slightly hollowed and bevelled forward; it widens towards the base, where it narrows somewhat suddenly. It is clearly less than half the length of the maxillæ, which are broadest $\frac{2}{3}$ of the distance from the base; rounded in front and on the outside, and narrowed considerably at the basal end.

The *sternum* is broadly ovate, almost pointed at the base, thickly covered with short coarse hair.

The *abdomen* is a long oval, thickly covered with short fine downlying hair.

The spinnerets are rather prominent, covered with thick coarse hair.

The epigyne is only slightly longer than broad and not much narrower anteriorly than at its base; the median longitudinal ridge broadens out considerably from the basal to the anterior end.

The *legs* are moderately long and stout, thickly covered with short downlying hair and upstanding bristles. There are two median spines on the upper sides of tibiae iii. and iv., none on the same of tibiae i. and ii.

The *palpi* are clearly longer than the cephalothorax.

In colouring, pattern, and size, this spider is very like *L. leuckartii* Thor. from Peak Downs, Queensland, as described by L. Koch, but differs in having the pattern of the under side of the abdomen bright brown instead of black-brown. The clypeus is much wider, instead of slightly only, than the front median eyes, which are rather wider apart than they are from the side eyes instead of equidistant. The palpi are longer instead of shorter than the cephalothorax, and the lip less instead of more than half the length of the maxillæ. The epigynal ridge of *leuckartii* is drawn by L. Koch widest in the middle, while here it certainly widens from the middle anteriorly.

Measurements in millimetres.

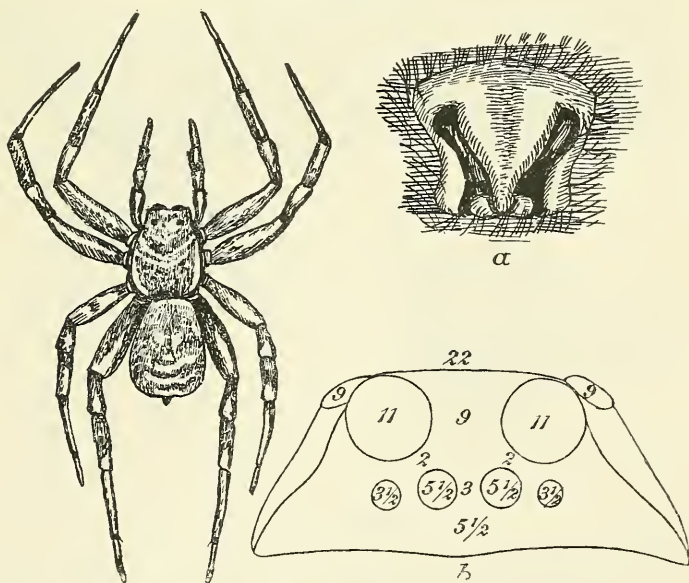
	Long.	Broad.				
Cephalothorax ...	10	{ $4\frac{1}{2}$ in front. 8				
Abdomen	$16\frac{1}{2}$	11				
Mandibles	5					
	Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.		
Legs	1. $4\frac{1}{2}$	$9\frac{1}{2}$	$10\frac{1}{2}$	$9\frac{1}{2}$	=	34
	2. 4	9	$9\frac{1}{2}$	$9\frac{1}{2}$	=	32
	3. 4	$8\frac{1}{2}$	$8\frac{1}{2}$	$9\frac{1}{2}$	=	$30\frac{1}{2}$
	4. $4\frac{1}{2}$	$9\frac{1}{2}$	11	14	=	39
Palpi.....	2	5	$4\frac{1}{2}$	3	=	$14\frac{1}{2}$

One female sent by Mr. A. Molyneux from the Gilbert River, Riverina, and I have named it after the sender.

LYCOSA CASTANEA, sp. nov. (Text-fig. 83.)

Female. Cephalothorax and mandibles pale yellow-brown, with pale yellowish-grey hair, without distinct marginal, median, or side

Text-fig. 83.



Lycosa castanea.

a, epigyne; b, eyes from front.

stripes. Lip, maxillæ, and coxæ bright yellow-brown. The abdomen above bright chestnut-brown ground with pale creamy-

yellow transverse stripes; underneath, a chestnut triangular shield, broadest at base and narrowing to spinnerets, which lie at its apex; sides pale creamy-yellow.

Legs and palpi bright chestnut all over, except the under side of the femora, which are of a pale cream-colour.

The *cephalothorax* is rather broad, being four-fifths of its length at its greatest breadth, and in front one-half of its length. The mandibles are also half the length of the cephalothorax and proportionately stout. There are three large teeth of equal size on the inner edge of the falx-sheath, and one as large between two small on the outer edge.

The front row of *eyes* is straight, the median being $1\frac{1}{2}$ times as far apart as they are from the laterals. Their diameters are in the same proportion.

The *clypeus* is as broad as the front middle eyes; the latter are half their diameter from those of the second row, which are slightly less than their diameter apart and twice that of the front median.

The *lip* is broader than long, straight in front, and less than half the length of the maxillæ.

The *abdomen* is a broad oval, thickly covered above and below with short smooth downy hair.

The epigyne is of a trapezoidal outline, broader than long, with the broadest part anteriorly, where also the middle ridge is very broad, tapering to where it springs from a base of the usual type.

The *legs* are long and powerful; and the palpi (from the trochanter) longer than the cephalothorax.

There is one spine above on tibia i., two on tibiæ ii., iii., and iv.

Measurements in millimetres.

		Long.	Broad.				
Cephalothorax ...		12	$\left\{ \begin{array}{l} 6 \text{ in front.} \\ 9\frac{1}{2} \end{array} \right.$				
Abdomen		13		10			
Mandibles		6					
		Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.		
Legs	1.	5	12	$12\frac{1}{2}$	12	=	$41\frac{1}{2}$
	2.	$4\frac{1}{2}$	11	$11\frac{1}{2}$	12	=	39
	3.	$4\frac{1}{2}$	10	$10\frac{1}{2}$	12	=	37
	4.	5	12	$12\frac{1}{2}$	16	=	$45\frac{1}{2}$
Palpi.....		$2\frac{1}{2}$	5	$5\frac{1}{2}$	$3\frac{1}{2}$	=	$16\frac{1}{2}$

In measurements and pattern of epigyne and other points this species differs but slightly from *L. errans*, sp. nov. The coloration of the latter is, however, much darker. Its large second row eyes are only $\frac{2}{3}$ of their diameter apart, and the median ridge of the epigyne in the female is broader anteriorly, and the base of same reaches to $\frac{1}{3}$ of the length. The clypeus

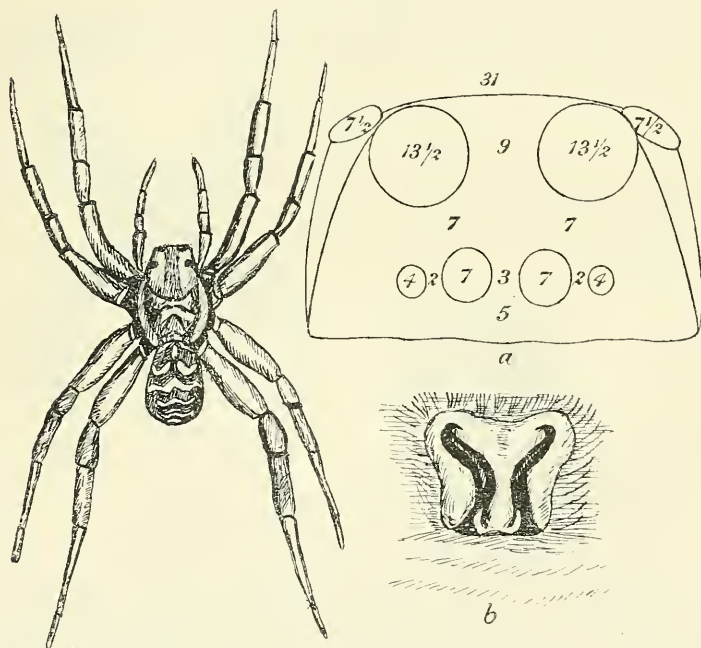
also is not so wide as the front median eyes, instead of equal. It has no spines on tibia i. or ii. above, and lip only as broad as long instead of broader.

One female (without locality) sent from Adelaide, S.A.

LYCOSA ERRANS, sp. nov. (Text-fig. 84.)

The cephalothorax is red-brown, with yellow-brown downlying hair; mandibles black-brown, with rather brighter coloured hair. Lip, maxillæ, sternum, and coxæ dark chocolate-brown. The abdomen above dark brown, rather thick coarse hair, with four pale spots at the base and transverse stripes of bright pale buff from middle to posterior end; on the underside a broad dark brown field reaching from base nearly to the spinnerets; the sides light yellow-brown.

Text-fig. 84.



Lycosa errans.

a, eyes from front; b, epigyne.

The legs are yellowish-brown, the patellæ and tibiæ darkest, and the underside of the femora almost silver-grey.

The cephalothorax is broad, being four-fifths its length in the broadest part and two-fifths in front, and not so long as patella cum tibia iv.

The *eyes* of the front row are in a straight line, the laterals half their diameter from the median, which are $1\frac{1}{2}$ that distance apart, their diameter being rather more than twice the same. The clypeus is less than their diameter by one-third. They are half their diameter from the eyes of the second row, whose diameter is twice that of the front median, and this is $1\frac{1}{2}$ times their distance apart.

The *mandibles* are long and stout. There are three large teeth on inner margin of falx-sheath, one large between two small on the outer.

The *lip* is as broad as long, straight in front, and less than half as long as the maxillæ.

The *abdomen* is a broad oval. In the female the epigyne is of a trapezoidal outline, broadest anteriorly, where it is broader than its length. The base of the median ridge reaches $\frac{1}{3}$ of the whole length, and is narrowest in the middle, the ridge being broader anteriorly than the base.

The *legs* are long and stout. There are no spines above on tibiæ i. and ii.; two each on tibiæ iii. and iv. The *palpi* (from trochanter) are longer than the cephalothorax.

Measurements in millimetres.

		Long.	Broad.			
Cephalothorax ...		13	{ 5 in front. 10			
Abdomen		$10\frac{1}{2}$		8		
Mandibles		6				
		Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.	
Legs	1.	$4\frac{3}{4}$	12	$12\frac{1}{2}$	12	= $41\frac{1}{4}$
	2.	$4\frac{1}{4}$	11	$11\frac{1}{2}$	$11\frac{1}{2}$	= $38\frac{1}{4}$
	3.	$4\frac{1}{4}$	$10\frac{1}{2}$	11	13	= $38\frac{3}{4}$
	4.	$4\frac{3}{4}$	12	$13\frac{1}{2}$	$16\frac{1}{2}$	= $46\frac{3}{4}$
					(11 & $4\frac{1}{2}$)	
Palpi.....		$2\frac{3}{4}$	$6\frac{1}{4}$	$5\frac{1}{4}$	$4\frac{1}{4}$	= $18\frac{1}{2}$

One female, without locality or collector.

LYCOSA BICOLOR, sp. nov. (Text-fig. 85.)

Cephalothorax bright yellow-brown (buff) all over, no side or median streaks. Mandibles, with hair of the same buff colour, dark brown underneath: fangs dark red-brown. Lip and maxillæ dark olive-brown with dark brown hair. Coxæ dark olive-brown. Sternum black-brown. Abdomen rich chocolate-brown on upper and under sides, with a bright buff field on upper side anteriorly, reaching to the middle of the back where it ends in a point. It is half as broad as long in the female, but in the male, which is young, a narrow stripe only.

Legs deep chocolate-brown from coxæ to near the anterior end of the patella, which is buff. Tibia, tarsus, and metatarsus buff

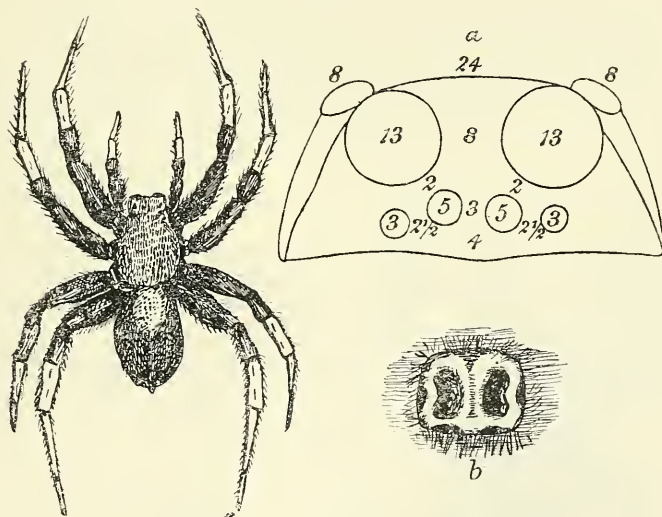
on both upper and under sides. Palpi: femur dark brown, other joints buff.

The *cephalothorax* is square in front, the greatest breadth two-thirds its length, covered with thickly matted coarse hair. The front row of *eyes* is procurved, median pair larger than laterals. Clypeus rather narrower than front median, which are only half that distance from the second row eyes.

The two middle row eyes are more than $2\frac{1}{2}$ times the diameter of the front median and $\frac{2}{3}$ of their diameter apart. The eyes of the third row are 3 times their diameter apart, and half that distance from the eyes of the second row.

There are three large teeth on the under side of the falcx-sheath, one large between two smaller on upper side of same.

Text-fig. 85.



Lycosa bicolor.

a, eyes from front; *b*, epigyne.

The *lip* is slightly broader than long and less than one-half the length of the maxillæ.

The oval *sternum* is three-fourths as broad as long.

There are no spines above on tibiæ i. and ii. of female. One short one in male. On tibiæ iii. and iv. above there are two in both male and female.

In the female the outline of the *epigyne* is oblong, rounded at the corners, one and a half times wider than long. The median ridge is narrowest in the middle, widening out at each end.

The palps of the male specimen wanted a moult of development.

The measurements of the female (in millimetres) are as follows:—

	Long.	Broad.
Cephalothorax ...	12	$\left\{ \begin{array}{l} 5 \text{ in front.} \\ 8\frac{1}{2} \end{array} \right.$
Abdomen	$12\frac{1}{2}$	9
Mandibles	6	longer than pat. i.

		Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.		
Legs	1.	$4\frac{1}{2}$	10	10	10	=	$34\frac{1}{2}$
	2.	4	$9\frac{1}{2}$	$9\frac{1}{2}$	$9\frac{1}{2}$	=	$32\frac{1}{2}$
	3.	4	$9\frac{1}{2}$	9	$9\frac{1}{2}$	=	32
	4.	$4\frac{1}{2}$	10	11	$13\frac{1}{2}$	=	39
Palpi.....		$2\frac{1}{2}$	5	5	$3\frac{1}{2}$	=	16

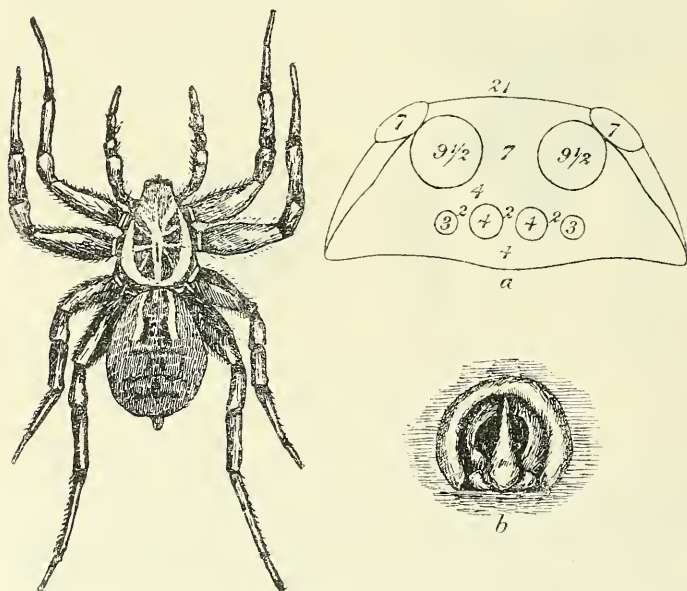
One male (undeveloped).

Two females. The locality is not given.

LYCOSA GILBERTA, sp. nov. (Text-fig. 86.)

Cephalothorax brown with yellow-grey hair; a paler yellow-

Text-fig. 86.



Lycosa gilberta.

a, eyes from front; b, epigyne.

grey median, marginal, and four side-streaks on each side, the latter backed by darker brown. Mandibles black-brown with thick

yellow decumbent hair and long erect brown bristles. Lip, maxillæ, and sternum dark red-brown, with dark yellow-brown hair. Coxæ with rather browner hair.

The abdomen above is yellow or grey-brown, almost orange on the sides in some specimens, in others paler yellow-brown. The whole of the under side from base to spinnerets of a dull dingy brown, about the same colour as the coxæ. Legs and palpi red-brown, with pale yellow-grey hair somewhat darker underneath.

The *cephalothorax* is as long as patella *cum* tibia iv.; as broad as femur i. It is slightly wider in front than one-half the greatest breadth.

There are three large teeth of equal size on the lower edge of the falk-sheath, and one large tooth between two small teeth, the lower of which is a little distance off, on the upper side.

The front row of *eyes* is straight along the lower edge, the larger median being $1\frac{1}{2}$ times the diameter of the laterals; they are one-half the diameter of the larger apart. The clypeus is as broad as the median front eyes, and they are the same distance from the pair of the second row. The latter are $\frac{2}{3}$ of their diameter apart, and the row is one-third longer than the front row.

The *lip* is broader than long, and barely half as long as the maxillæ.

There are two spines above on tibiæ iii. and iv., none on i. and ii.

There are five females from the Gilbert River, Riverina, all fully developed. Two large and three smaller vary considerably in size, but I can discover no structural differences between them.

The epigyne is of a horseshoe-shape, slightly broader than long. The median ridge broad at the base, and tapers to a narrow ridge anteriorly.

Measurements in millimetres

(of a large and small specimen respectively).

		Long.	Broad.				
Cephalothorax ...		14	$\left\{ \begin{array}{l} 5\frac{1}{2} \\ 10 \end{array} \right.$	in front.			
Abdomen		$17\frac{1}{2}$	13				
Mandibles		$6\frac{1}{2}$					
				Pat. &	Metat.		
		Coxa.	Tr. & fem.	tib.	& tars.		
Legs	1.	6	12	13	12	=	43
	2.	5	$11\frac{1}{2}$	12	12	=	$40\frac{1}{2}$
	3.	5	11	11	12	=	39
	4.	6	14	14	17	=	51
Palpi.....		$2\frac{1}{4}$	$6\frac{1}{4}$	5	4	=	$17\frac{1}{2}$
		Long.	Broad.				
Cephalothorax ...		11	$\left\{ \begin{array}{l} 4 \\ 7\frac{1}{2} \end{array} \right.$				
Abdomen		13	9				
Mandibles		$4\frac{1}{2}$					

		Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.		
Legs	1.	4	9	10	9	=	32
	2.	$3\frac{1}{2}$	$8\frac{1}{2}$	9	9	=	30
	3.	$3\frac{1}{2}$	8	8	$9\frac{1}{2}$	=	29
	4.	4	10	10	14	=	38

LYCOSA STIRLINGÆ, sp. nov. (Text-fig. 87.)

Female. Cephalothorax brown, with paler median, side, and marginal stripes. Mandibles black-brown, with red-brown hair. Lip, maxillæ, and sternum red-brown, with dark red-brown hair. Coxæ dark red-brown, with paler yellow-brown hair at anterior ends.

The abdomen above is black-brown, with dark red-brown hair and with just a faint pattern. Underneath bright red-brown, with black shield broadest at the genital fold and tapering to the spinnerets.

Legs and palpi yellow-brown all over, lighter on the under sides.

In the *male* the stripes on the cephalothorax are more silvery, and the hair on the coxæ and legs generally paler yellow-brown.

The *cephalothorax* is of the high narrow type, the clypeus being more than twice as wide as the front median eyes.

The front row of *eyes* is slightly procurved, the median eyes slightly less than their diameter apart and the same distance from those of the second row. The laterals have their diameter slightly smaller than that of the median, and are $\frac{2}{3}$ of it from the median.

The eyes of the second row are twice the diameter of the front median apart, and their diameter slightly more.

The eyes of the third row are four times their diameter apart.

In the male the front row of eyes is rather more procurved than in the female, and the eyes of the second row just their diameter apart.

The *mandibles* are longer than the width of the cephalothorax in front. They have three large equal teeth on the lower edge of the falx-sheath and one large between two small on the upper edge.

The *lip* is as broad as long and less than half the height of the maxillæ.

The *sternum* is of a broad shield-shape, thickly covered with coarse flatly placed hairs.

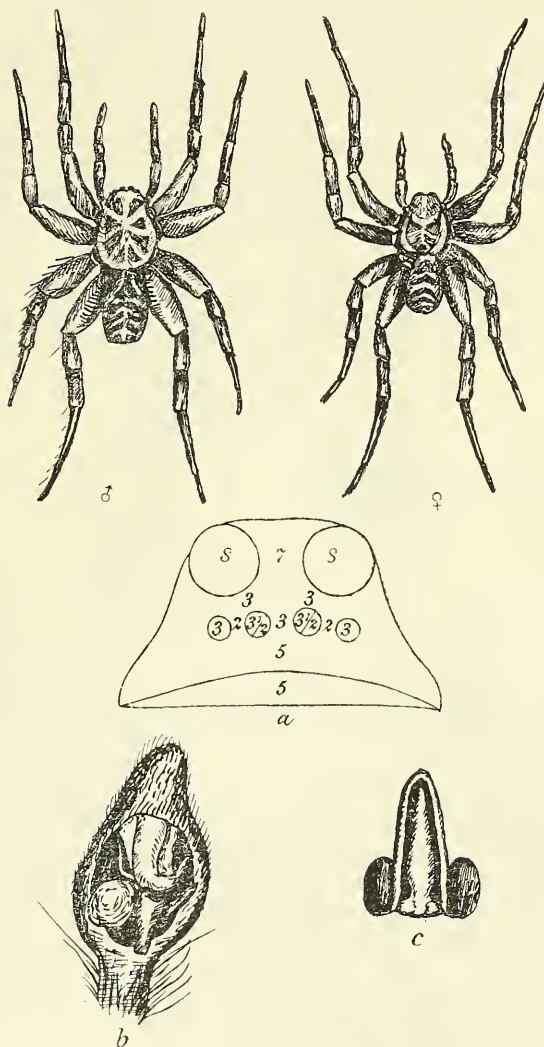
The *legs* are thickly covered with short flatly placed hairs, there are no bare long streaks, and a fair number of erect bristles. On the upper side of the tibial joint the female has two spines on the 3rd and 4th pairs. In the male two on all the tibiæ.

The tibial joint of the *palpi* is longer than the patella.

In the female the epigyne is narrowest anteriorly, and is $2\frac{1}{2}$ times as long as it is broad at the base. The median ridge is broadest at the base and tapers anteriorly. Outside the epigyne proper, on each side of the base, is a darkened oval hollow, with its longer diameter lying longitudinally.

This species in many points resembles *L. ramosa* L. K., described from an immature female, but besides being larger has no rings

Text-fig. 87.



Lycosa stirlingæ, ♂ & ♀.

a, eyes from front of female; *b*, male palp; *c*, epigyne.

on the legs. The front row of eyes is shorter than the second instead of being equal, and the median eyes of the front row are

only one instead of two diameters from those of the second row; also the tibial joint of the palpi is longer than the patellar joint instead of equal to it.

Measurements in millimetres.—Female.

	Long.	Broad.
Cephalothorax ...	11	$\left\{ \begin{array}{l} 4\frac{1}{2} \text{ in front.} \\ 8 \end{array} \right.$
Abdomen	9	6
Mandibles	$5\frac{1}{2}$	much longer than front patella.

		Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.		
Legs	1.	4	$9\frac{1}{2}$	$9\frac{1}{2}$	$9\frac{1}{2}$	=	$32\frac{1}{2}$
	2.	$3\frac{1}{2}$	9	9	9	=	$30\frac{1}{2}$
	3.	$3\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	8	=	$28\frac{1}{2}$
	4.	4	10	10	$12\frac{1}{2}$	=	$36\frac{1}{2}$
Palpi.....	2		5	$4\frac{1}{2}$	3	=	$14\frac{1}{2}$

Male.

	Long.	Broad.
Cephalothorax ...	8	$\left\{ \begin{array}{l} 3\frac{1}{2} \\ 6 \end{array} \right.$
Abdomen	8	5
Mandibles	4	

		Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.		
Legs	1.	$3\frac{1}{2}$	9	10	11	=	$33\frac{1}{2}$
	2.	3	8	9	$10\frac{1}{2}$	=	$30\frac{1}{2}$
	3.	3	$9\frac{1}{2}$	7	10	=	$29\frac{1}{2}$
	4.	$3\frac{1}{2}$	$9\frac{1}{2}$	$9\frac{1}{2}$	13	=	$35\frac{1}{2}$
Palpi.....	2		4	3	$2\frac{1}{2}$	=	$11\frac{1}{2}$

One male and one female from Gilbert River, Riverina, collected by Mr. A. Molyneux.

LYCOSA ARENARIS, sp. nov. (Text-fig. 88.)

Cephalothorax yellow-brown; hairs red, black, and white mixed over cephalic part, behind this a white patch extending to middle of rear slope, and less distinctly pale round the margin. Mandibles dark brown, with erect brown and decumbent greyish-yellow hairs. Lip, maxillæ, and sternum yellow-brown, with pale greyish-yellow hair. Coxæ yellow-brown.

Abdomen dull grey-brown, irregularly spotted with small patches of white hairs, the underside dingy brown, the centre area rather paler than the sides.

The *legs* and *palpi* yellow, brown decumbent hairs and darker brown erect bristles, with a ring of paler yellow round femur, middle of tibia, and metatarsal joints.

The front of the *cephalothorax* is high and narrow, with a clypeus twice the width of the front middle eyes. The front row of *eyes*

is straight, the median larger than the laterals, all equidistant, less than half the diameter of the median from one another. From the second row to front median equals the diameter of the front laterals. The eyes of the second row are rather more than half their diameter apart, which is twice that of the front median; they are three diameters away from the rear row.

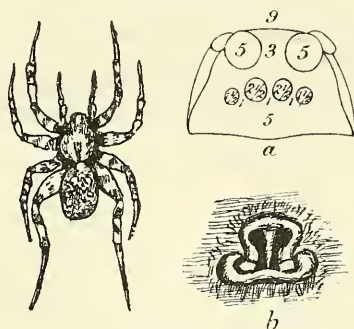
On the lower margin of the falcx-sheath are three large teeth.

The *mandibles* are longer than the front of the cephalothorax.

The *lip* is as broad as long and half the length of the *maxillæ*.

The *sternum* is a broad oval, pointed posteriorly and thickly covered with coarse hair. The *coxæ* have only short fine hairs lightly spread.

Text-fig. 88.



Lycosa arenaris.

a, eyes from front; *b*, epigyne.

The *abdomen* is oval, rather pointed posteriorly. The epigyne of the female broader than long, with a narrow middle ridge and the basal part curling round outside the horseshoe-shaped middle.

The *legs* are rather fine. There are two spines above on tibiae iii. and iv., none on the first or second pairs. On the under side the spines are long and stout.

The tibial joint of the *palpi* is longer than the *patella*.

Measurements in millimetres.

		Long.	Broad.				
Cephalothorax ...		6	$\left\{ \begin{array}{l} 2\frac{1}{2} \\ 4\frac{1}{2} \end{array} \right.$ in front.				
Abdomen		$7\frac{1}{2}$		$4\frac{1}{2}$			
Mandibles		3					
		Coxa.	Tr. & fem.	Pat. & tib.	Metat. & tars.		
Legs	1.	$2\frac{1}{2}$	5	$5\frac{1}{2}$	5	=	18
	2.	2	$4\frac{1}{2}$	5	5	=	$16\frac{1}{2}$
	3.	2	$4\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	=	$16\frac{1}{2}$
	4.	$2\frac{1}{2}$	6	6	8	=	$22\frac{1}{2}$
Palpi.....		$1\frac{1}{4}$	3	$2\frac{1}{4}$	$1\frac{3}{4}$	=	$8\frac{1}{4}$

Two females brought by the Horn Expedition from the MacDonnell Ranges.

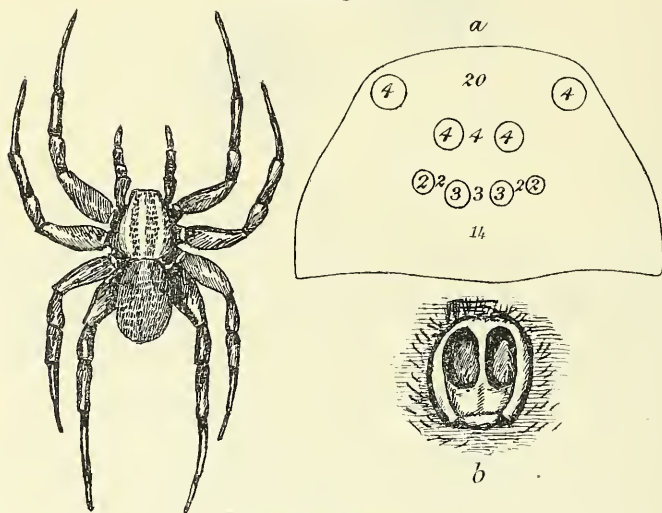
This species rather closely resembles L. Koch's *L. crispipes* from Rockhampton, though larger. It is more faintly marked on the cephalothorax, and is without the pattern on the back of the abdomen. The lower edge of the front row of eyes is straight instead of procurved, and the epigyne is broader at the base, which curls round instead of ending at the base of the horseshoe parts.

In this species the cephalothorax is as long as patella *cum* tibia iv. L. Koch says that in *L. crispipes* it is longer than tibia iv.

Dolomedes habilis, sp. nov. (Text-fig. 89.)

Cephalothorax chocolate-brown, with a narrow pale yellow-brown stripe reaching from the second row of eyes to the rear slope, and a similar stripe on each side of the cephalothorax at about one-third of the distance from the margin to the middle line.

Text-fig. 89.



Dolomedes habilis.

a, eyes from front; *b*, epigyne.

The mandibles are black-brown, thickly covered with long yellow-brown hair. The lip and maxillæ yellow-brown; sternum rather more yellow. Legs and palpi yellow-brown all over, brighter underneath. The abdomen is yellow-brown, of the same shade as the upper side of the legs. The sides paler yellow-brown in the front half, merging into the same colour as that of the back towards the rear, the paler part being divided from the back by a

bright yellow-brown stripe of the same colour as on the cephalothorax. The under side of the abdomen is yellow-brown, with a faint shield-pattern marked out by paler side-lines and two similarly coloured parallel lines inside.

The *cephalothorax* is moderately high in front, being two-thirds as high as broad in that part and rather more than half as broad as in its widest part; the median line slightly slopes upwards as far as the rear end of the longitudinal fovea, whence it falls steeply down.

The front row of *eyes* is recurved or straight along the upper edge, the median pair being their diameter apart; the laterals are two-thirds the diameter of the median and the same distance away from them. The clypeus is twice as broad as one median and lateral eye with the space between them. The eyes of the second row are a diameter apart, larger than the front median and their diameter from them. The eyes of the third row are as large as the second, on rather large prominences, and 5 diameters apart.

The *mandibles* are as long as the width in front of the cephalothorax, and have one small and three large teeth on the inner margin of the falx-sheath, with one large between two small on the outer.

The *lip* is slightly broader than long, straight in front and half the length of the *maxilla*.

The *sternum* is nearly round, and thickly covered with short downy hair.

The *abdomen* is ovate, straight in front, with four prominent muscle-spots in the anterior half above, with short decumbent hair. The epigyne of the female is oval, the inside oval hollows being in the anterior part of the arch.

The *palpi* are longer than the cephalothorax, and the tibial joint is longer than the patella.

The *legs* are covered with smooth decumbent hair, and there is a not very thick scopula on the tarsus and metatarsus of all legs.

Measurements in millimetres.

		Long.	Broad.	
Cephalothorax ...		$9\frac{1}{2}$	$\left\{ \begin{array}{l} 4\frac{1}{2} \text{ in front.} \\ 8 \\ 7 \end{array} \right.$	
Abdomen		11		
Mandibles		$4\frac{1}{2}$	= longer than front patella.	
		Coxa.	Tr. & fem.	Pat. & tib. Metat. & tars.
Legs	1.	4	$9\frac{1}{2}$	11 $10\frac{1}{2}$ = 35
	2.	$3\frac{1}{2}$	9	$10\frac{1}{2}$ 10 = 33
	3.	$3\frac{1}{2}$	9	10 $9\frac{1}{2}$ = 32
	4.	4	$9\frac{1}{2}$	$11\frac{1}{2}$ 13 = 38
				(4 & $7\frac{1}{2}$)
Palpi.....	2	$4\frac{1}{2}$	$4\frac{1}{2}$	3 = 14
				(2 & $2\frac{1}{2}$)

This species is rather close to L. Koch's *D. instabilis*, from Mudgee, not very far north of Gilbert River; but differs in having scopulae on the tarsus and metatarsus of each pair of legs, and the first pair of legs longer than the second pair, instead of equal in length. The clypeus, though very wide, is not so wide as the front row of eyes, thus differing from the condition described by L. Koch for his species. There is no scoloped pattern on the back of the abdomen, and no paler coloured spots at the root of the spines on the legs.

There are two females sent by Mr. A. Molyneux from the Gilbert River.

LYCOSA OBSCURA L. Koch, 1877.

Die Arachn. Austr. vol. ii. p. 954.

Gilbert River, Riverina, N. S. Wales (*Molyneux*); Kangaroo Island, S. Austr. (*Tepper*); Onkaparinga, S. Austr. (*Tepper*). 15 males, 22 females.

Previously described from Bowen, Queensland, and Sydney.

LYCOSA LETA? L. Koch, 1877.

Op. cit. vol. ii. p. 944.

One female. Kangaroo Island (*Tepper*).

According to L. Koch, *L. leta* has the palpal tibia longer than patella of same; in this specimen the two joints are of equal length.

Previously described from Rockhampton, Queensland, and Palm Creek, Central Australia.

LYCOSA CLARA? L. Koch, 1877.

Op. cit. vol. ii. p. 912.

Four females. Goolwa (*A. Zietz*).

In *L. clara*, according to Koch, the cephalothorax is equal to patella cum tibia iv., in these specimens it is slightly longer.

Previously described from Bowen, Queensland, and Macedon, Victoria.
